

IN THE CLAIMS:

1. (Currently Amended) A system for delivering a supply of gases to a patient comprising:
a gases supply providing a flow of gases,
a humidifier receiving said flow of gases from said gases supply and capable of
humidifying said flow of gases up to a level of humidity prior to delivery to said patient,
a conduit conveying said flow of gases from said humidifier to said patient,
a sensor sensing device to sense the humidity, temperature or flow rate of said flow of
gases after said flow of gases have been humidified by said humidifier, said sensing device
comprising a cartridge or open tubular section having a port, a sensor, a housing releasably
containing said sensor, in use said housing being sealably connected to the port, said sensor in
use being releasably coupled in-line between said humidifier and said conduit, and
a filter material being located covering said housing, and wherein the cartridge or open
tubular section is releasably coupled, in use, in line between said humidifier and said conduit, the
sensor being coupled to said cartridge or open tubular section such that said sensor is exposed to
a portion of said flow of gases through said cartridge or open tubular section, and the filter being
located such that said sensor is exposed to a portion of said flow of gases passing through said
filter material only, with a significant portion of the flow of gases passing from the humidifier to
the conduit without passing through the filter material.

2-16. (Cancelled)

17. (Previously Presented) A system according to claim 1 wherein said humidifier includes a humidification chamber adapted to receive a volume of water and a water heater to heat said water, said flow of gases passing through said humidification chamber, through a gases inlet and out a gases outlet, and evaporating said water, said flow of gases thereby being humidified.

18-25. (Cancelled)

26. (Previously Presented) A system according to claim 17 wherein said humidifier includes a controller to control said water heater and the level of humidity or temperature of said flow of gases.

27. (Previously Presented) A system according to claim 26 wherein said sensor is connected to said controller and conveys a sensed level of humidification of said flow of gases to said controller, said controller controlling said water heater to alter said sensed level of humidification of said flow of gases to a predetermined humidification level.

28. (Previously Presented) A system according to claim 27 wherein said predetermined humidification level is such that said patient receives said flow of gases at 37°C and containing 44mg of water vapour per litre.

29. (Previously Presented) A system according to claim 17 wherein in use, connections are formed between one side of said cartridge or open tubular section and said outlet of said humidifier and the other side of said cartridge or open tubular section and said conduit.

30. (Previously Presented) A system according to claim 29, wherein said connections are one of a friction fitting, bayonet fitting, snap fitting or threadable connection.

31. (Currently Amended) A sensing device to sense humidity, temperature or flow rate of a flow of gases in a conduit after said flow of gases have been humidified by a humidifier and providing feedback to a controller which controls said humidifier, said sensing device comprising:

a cartridge or open tubular section having a port,

a sensor,

a housing releasably containing said sensor, in use said housing being sealably connected to the port, and

a filter material covering said housing, and

wherein said cartridge or open tubular section is releasably coupled, in use, in line between the humidifier and the conduit, the to said sensor being coupled to said cartridge or open tubular section; such that said sensor is exposed to said flow of gases through said cartridge or open tubular section,

said filter material being located such that the sensor is exposed to a portion of the flow of gases passing through the filter material only, with a significant portion of the flow of gases

passing through the cartridge or open tubular section from the humidifier to the conduit without passing through the filter material.

32. (Currently Amended) A sensing device according to claim 31 including a housing containing said sensor; wherein said housing extending extends through or residing resides within said cartridge or open tubular section and at least part of said housing being is exposed to said flow of gases.

33. (Currently Amended) A sensing device according to claim 31 wherein said filter material is a semi-permeable or hydrophilic material.

34. (Currently Amended) A sensing device according to claim 31 wherein said filter material is monolithic film, microporous media or electrostatic filter.

35. (Currently Amended) A sensing device according to claim 31 wherein said sensor has a heating element attached to minimize saturation of further including a heater to provide heat to said sensor.

36. (Currently Amended) A sensing device according to claim 32 wherein said sensor heater is contained in said housing has a heating element attached to said housing to minimize saturation of said sensor.

37. (New) A sensing device according to claim 31 wherein said port of said cartridge or open tubular section is covered by said filter.

38. (New) A sensing device according to claim 32 wherein said filter is a semi-permeable or hydrophilic material.

39. (New) A sensing device according to claim 38 wherein said filter is monolithic film, microporous media or electrostatic filter.

40. (New) A sensing device according to claim 32, wherein said filter is a semi-permeable or hydrophilic material.

41. (New) A sensing device according to claim 32, wherein said filter is monolithic film, microporous media or electrostatic filter.

42. (New) A system according to claim 1, wherein said housing extends through or resides within said cartridge or open tubular section and at least part of said housing is exposed to said flow of gases.

43. (New) A system according to claim 42, wherein said filter is a semi-permeable or hydrophilic material.

44. (New) A system according to claim 42, wherein said filter is monolithic film, microporous media or electrostatic filter.

45. (New) A system according to claim 1, wherein said port of said cartridge or open tubular section is covered by said filter.

46. (New) A system according to claim 1, wherein said filter is a semi-permeable or hydrophilic material.

47. (New) A system according to claim 1, wherein said filter is monolithic film, microporous media or electrostatic filter.

48. (New) A system according to claim 1, further including a sensor heater to provide heat to said sensor.

49. (New) A system according to claim 48, wherein said sensor heater is contained within said housing.

50. (New) A system according to claim 1, wherein in use, connections are formed between one side of said cartridge or open tubular section and said outlet of said humidifier and the other side of said cartridge or open tubular section and said conduit.

51. (New) A system according to claim 50, wherein said connections are one of a friction fitting, bayonet fitting, snap fitting or threadable connection.